



Program Executive Office
Assembled Chemical Weapons Alternatives

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Assembled Chemical Weapons Alternatives
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A Partnership for Safe
Chemical Weapons
Destruction

www.peoacwa.army.mil



Transportable Detonation Chamber Overview

The Program Executive Office, Assembled Chemical Weapons Alternatives, or PEO ACWA, program is currently exploring the use of explosive destruction technologies (EDT) to augment chosen technologies for destroying the chemical weapons stockpiles at the U.S. Army Pueblo Chemical Depot in Colorado and the Blue Grass Army Depot in Kentucky.



What is an EDT?

EDTs use explosive charges or heat to destroy chemical weapons and do not require disassembly of the munitions. There are different types of EDTs, one of which is the Transportable Detonation Chamber (TDC).

The Transportable Detonation Chamber is a fully enclosed explosive destruction technology that is capable of destroying chemical munitions using detonation technology.

What is the Transportable Detonation Chamber?

The TDC is a self-contained system, which includes a detonation chamber, an expansion chamber and an emission control system. It destroys munitions that are wrapped in explosive by detonating them within the fully-enclosed chamber. Applications of the TDC include destruction of recovered chemical weapons in Poelkapelle, Belgium, and destruction of projectiles at Schofield Barracks, Hawaii. Currently, the TDC is undergoing testing at Aberdeen Proving Ground, Md.

How does it work?

Munitions are wrapped in explosives, placed in the TDC's detonation chamber and detonated to destroy the chemical agent and energetics. The chamber's floor is covered in pea gravel, which absorbs some of the blast energy. Bags of water within the chamber also absorb blast energy and produce steam, which reacts with and destroys agent vapors. Gases produced by the detonation are vented to the expansion chamber and then to the emissions control system. A catalytic oxidation unit oxidizes hydrogen, carbon monoxide and organic vapors before the gas stream is vented through a carbon absorption bed and released.

The TDC produces no liquid waste. Scrap metal removed from the detonation chamber is recycled and solid wastes from the emissions control system are treated and disposed of in compliance with applicable federal and state regulations. The TDC was developed in the U.S. by CH2M Hill of Meridian (Englewood), Colo.

For additional information on EDTs, including the TDC, and their application, please refer to the National Research Council's report *Assessment of Explosive Destruction Technologies for Specific Munitions at the Blue Grass and Pueblo Chemical Agent-Destruction Pilot Plants*, which is available at www.nap.edu.

For more information about PEO ACWA, visit www.peoacwa.army.mil